

Innovative Laundering and Sanitization System to Extend Duration of Crew Clothing Wear, Phase I

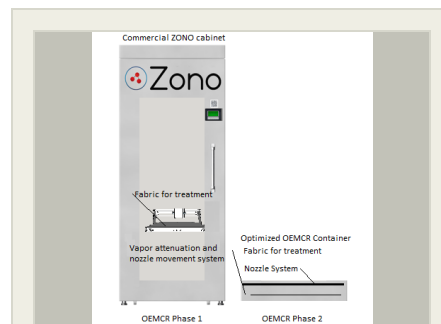
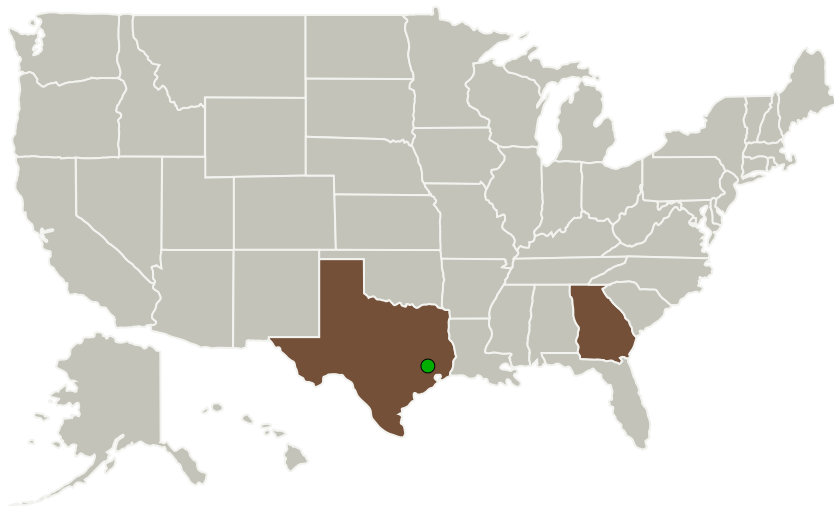
Completed Technology Project (2017 - 2018)



Project Introduction

The proposed innovation will refresh crew clothing to extend the duration of wear. It is a collapsible or portable light-weight cleaning sanitizing and deodorizing system using ozone and water vapor to: (1) remove the combined contamination from perspiration salts, organics, dander, and dust; (2) kill 99.9% of common bacteria and viruses; and (3) reduce or eliminate associated odors. The system will address the issue of using liquid water in microgravity by treating the fabric while it is flat using water vapor which acts like a gas. The vapor which may or may not be steam will be attenuated by using movable nozzles that will allow it to be directed on all areas of the fabric. The movable nozzles will replace the random tumbling of items inside of a conventional washing machine which is state of the art in industry and ensure that all areas of the fabric are treated. The significance of the innovation is that a vapor based portable light-weight cleaning sanitizing and deodorizing system will: (1) allow more available payload capacity by the weight reduction associated with reduced water usage and clothing inventories; (2) reduce laundry based water and consumable usage to less than 200g of water and less than 10g of consumables per kg of clothing washed; (3) reduce the use of power for laundry usage; (4) require no attention from the astronauts during the cycle; (5) decrease or eliminate odor from crew wear by sanitizing (99.9% kill of bacteria); (6) reduce disease transmission and odor of other materials like the TEVIS harness; (7) fight potential infection; (8) and reduce the inventory of garments needed by reducing the need for frequent change.

Primary U.S. Work Locations and Key Partners



Innovative Laundering and Sanitization System to Extend Duration of Crew Clothing Wear, Phase I Briefing Chart Image

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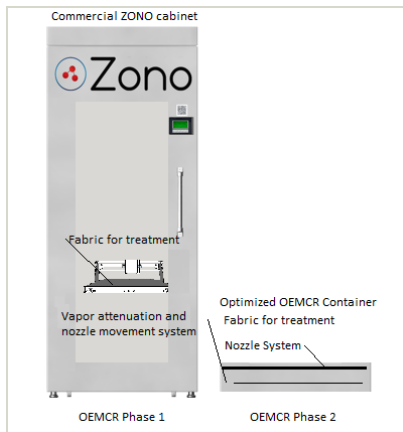


Organizations Performing Work	Role	Type	Location
Zono Services, LLC	Lead Organization	Industry	Lawrenceville, Georgia
● Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas

Primary U.S. Work Locations

Georgia	Texas
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Images



Briefing Chart Image

Innovative Laundering and Sanitization System to Extend Duration of Crew Clothing Wear, Phase I Briefing Chart Image (<https://techport.nasa.gov/image/128930>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Zono Services, LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

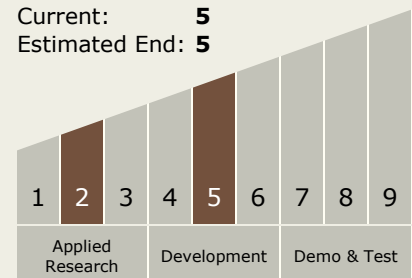
Carlos Torrez

Principal Investigator:

Walter Mann

Technology Maturity (TRL)

Start: 2
Current: 5
Estimated End: 5



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Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
 - └ TX06.1 Environmental Control & Life Support Systems (ECLSS) and Habitation Systems
 - └ TX06.1.4 Habitation Systems

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System